

## ABSTRACT

The apparatus provides for the determination of the instantaneous phase in the respiratory cycle, subject's average respiration rate and the provision of ventilatory assistance. A microprocessor (16) receives an airflow signal from a pressure transducer (18) coupled to a port (17) at a mask (11). The microprocessor (16) controls a servo (19), that in turn controls the fan motor (20) and thus the pressure of air delivered by the blower (10). The blower (10) is coupled to a subject's mask (ii) by a conduit (12). The invention seeks to address the following goals: while the subject is awake and making substantial efforts the delivered assistance should be closely matched in phase with the subject's efforts; the machine should automatically adjust the degree of assistance to maintain at least a specified minimum ventilation without relying on the integrity of the subject's chemoreflexes; and it should continue to work correctly in the presence of large leaks.